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EXPLORING THE LEGACY OF THE MAYA FOREST

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ABSTRACT.—The legacy of the Maya forest is entwined with the Maya people who have lived and worked across this landscape over the past five millennia or more. The signatures of their land use, the complexity of their strategies, and the diversity of their adaptation is only recently being investigated, let alone understood. This special issue of the *Journal of Ethnobiology* takes a close look at the region and brings into focus the intricacies that must be considered in the explanations of the rise and fall of the Maya as well as the conservation of the Maya forest today. The papers herein combine archaeological and ethnographic data on the Maya and the long history of their relationship with the forest. Underscoring all the papers is the evidence that the Maya tropics are resilient as a result of the land use strategies that have become a part of its essence.

Key words: Maya Forest, human and environment, regional resilience, archaeology, ethnography.

RESUMEN.—La herencia de la selva Maya esta entrelazado con la gente Maya que han vivido y trabajado en ese paisaje por más que cinco milenios. Solamente en años recientes han investigado las huellas de su usa del terreno, la complejidad de sus estrategias, y la diversidad de su adaptación, y no es decir que está entendido. Esa publicación especial del *Journal of Ethnobiology* fija la vista en la región y enfoca en la complejidad que debe estar considerado en las explanaciones de la ascensión y caída de los Maya, tanto como la conservación de la selva Maya de hoy. Los artículos aquí combinan información arqueológica y etnográfica sobre los Maya y la larga historia de su relación con la selva. Subrayando todos los artículos es la evidencia que el medio ambiente trópical Maya es resistente como resultado de las estrategias de uso de tierra de la gente Maya que han vuelto a ser parte de la esencia de la selva.

RÉSUMÉ.—L'héritage de la forêt maya est intrinsèquement liées aux Mayas qui ont vécu et travaillé le paysage forestier Maya au cours de plus de cinq millénaires. C'est seulement récemment que l'empreinte de l'usage du sol, la complexité de cet usage et la diversité des modes d'adaptation ont été étudiés et c'est peu dire à peine compris. Ce tirage spécial du *Journal of Ethnobiology* porte un regard plus acéré sur cette région et met en éclairage les relations étroites qui doivent être considérées pour expliquer l'avènement et la chute des Mayas ainsi que la conservation de la forêt Maya jusqu'à nos jours. Ces articles articulent des données archéologiques et ethnographiques sur les Mayas et la longue histoire de

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leur relation avec la forêt. A travers cet article est sous- tendue l'évidence que le milieu tropique Maya a survécu parce qu'il est le résultat des stratégies d'usage des sols qui en sont tout à la fois son essence.

INTRODUCTION TO THE MAYA FOREST

The lowland Maya forest of southern Mesoamerica is home to one of the most glamorized of ancient civilizations, the Maya (Figure 1). This civilization is among the few in the world to have emerged in the tropics. Now hidden in forest growth, the abandoned cities of the ancient Maya have held the fascination of the public and have been the focus of extensive attention of scholars. This interest has fueled debate as to the nature of ancient Maya adaptations to their forest surroundings, with some lauding them for their sophisticated culture and others blaming them for charting their own demise through environmental mismanagement.

To the early visiting Europeans, the rocky landscape, thin soil, and the seeming absence of land modification schemes in the humid Maya lowlands and coastal regions deemed the idea of ancient Maya prosperity improbable. Nevertheless, the long prehistory of the growth of the complex Maya system belies this apparent contradiction. Emerging from a foraging subsistence strategy as the tropical forests expanded in the middle Holocene, the early horticultural occupants of the area certainly relied on an intimate knowledge of their habitat

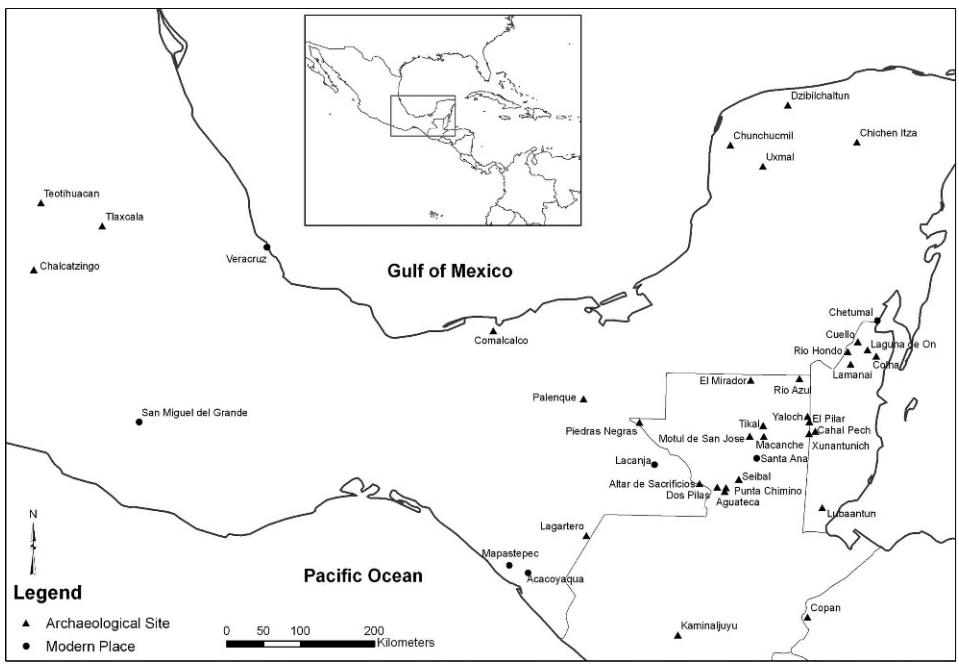

FIGURE 1.—Map of the Maya region with major sites and places mentioned in the text (map courtesy of Anabel Ford).

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that would later underwrite the great achievements of the Maya. With the establishment of permanent settlements in Mesoamerica from 4,000 to 3,000 years ago, there was a great investment in the landscape as evident in the wide dispersion of first residential and ultimately civic sites. Direct archaeological evidence in these early times, while scant, indicates the use of maize as a staple grain combined with a wide variety of other cultigens including squashes and beans. This suggests the use of the traditional Maya farming system from earliest agricultural times. By the Classic Period (AD 250–900), the trademark temple complex and commemorative stone texts had spread throughout the Maya lowlands of southern Mesoamerica (see Figure 1), associated with the sophisticated writing, mathematical, astronomical, calendrical, and agricultural systems of the Maya culture.

Much archaeological research attests to the complex nature of the Classic Maya relationship with their surroundings, particularly in the southern lowland Maya forests. This peak period of nearly seven centuries was followed by the infamous collapse (AD 900–1000), when many large southern cites fell into ruin and political and economic systems of the entire Maya region were dramatically changed. Some populations continued to occupy the southern lowlands after AD 1000 in the Postclassic and maintained their agricultural traditions, but large numbers moved to the northern lowlands where economies boomed and cities grew. The Spanish conquerors of the 16th century encountered the Maya, still practicing many of their Classic-period traditions, across the greater Yucatan Peninsula and Petén.

On the Mesoamerican and Maya landscapes, maize is the principal crop and the traditional agricultural field is called the milpa. Milpas are complex polycultural plots that are visually dominated by maize, but flourish with many other crops (Teran 1994) including a bewildering variety of ''weeds'' that serve as greens, herbs, medicine, pesticides and herbicides, as well as allelopathic plants (Gliessman 1983). They are farmed at a distance from settlements or within settlement boundaries as household gardens such as those described here by Gasco, Corzo and Schwarz, and Ford. Where required by the landscape, they can include terracing (see Wyatt) or drainage systems (see Luzzader-Beach and Beach), but most are unmodified plots micromanaged for their individual values in ways invisible to archaeologists (as presented by Nigh). The high-diversity, high-performance milpa (Wilken 1987) is closely allied with the forests that surround it, mimicking species composition and structure (Nigh, Campbell et al., and Ford in this issue). The milpa forms an intrinsic part of the complex relationship between the agricultural communities and forest landscapes that together create the Maya forest.

The papers here remind us of the Maya's significant impact on the landscape by emphasizing their endurance, growth, and success across the millennia. Their agricultural systems, adapted to seasonal deluge and drought (cf. Whitmore and Turner 2002), survived both excess and deficits of precipitation at several critical times. Nonetheless, various models of the end of the Classic period have pointed to environmental overuse, perhaps in tandem with insurmountable climate changes, as a cause for the southern lowland collapse. Data mount that the region experienced successive periods of minimal rainfall (Haug et al. 2001; Peterson et

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al. 2005) that may have created instability in the sensitive rainfall-based subsistence system. Certainly, the relationship between population and the environment was at the core of changes associated with this period, yet the ecology of the Maya forest persisted, only to be threatened today with the pervasive expansion of pasture and plow. Even with the reorganization of the political and economic systems of the southern lowlands after AD 1000, the milpa system remained the essential subsistence tool in this area into the present (Farriss 1992; Faust 2001).

BACKGROUND TO THE SPECIAL ISSUE

In this special issue of the *Journal of Ethnobiology*, we bring together ten contributions to take a fresh look at the Maya and their relationship with the tropical landscapes of the lowlands and coastal regions of the Maya world. The papers converge on the position that the entwined relationship between culture and nature that is embodied in the Maya forest is evident from studies of both ancient and contemporary Maya. This continuity speaks to the resilience of the Maya forest, today dominated by economic species (Campbell et al. 2006), understood in the folkecology of the Mayan language (Atran et al. 1999), and cultivated with traditional practices (Gomez-Pompa and Kaus 1990).

These studies of the legacy of the Maya forest derive from a sequence of symposia addressing the complex interdisciplinary picture emerging from research on the question of the culture and nature of the ancient and modern Maya landscapes (International Congress of Americanists in Seville, Spain [2006], the American Anthropological Association in San Jose, California, USA [2006], and the International Congress of Mayistas in Merida, Mexico [2007]). This special issue presents archaeological, botanical, and ethnographic evidence from the Maya region that link the survival of the Maya forest to the management and exploitation designs of the people. This process of selection and nurturing has relied on the essential tool of the high-performance milpa (Wilken 1987), or intensive interplanting of maize fields.

Understanding the past uses of the Maya forest is essential to resolving the apparent contradictions of Maya development. Emery and Thornton, Wyatt, and Luzzadder-Beach and Beach each use the archaeological setting of wide spread archaeological contexts to draw out long-term patterns of actions and reactions evident in the archaeological record. To build the case of ecological interplay among humans and their environment this archaeological research is combined with an understanding of ecological relationships. The interpretations of Emery and Thornton, Ford, Campbell et al., and Luzzadder-Beach and Beach address the ecological understanding required by past and present Maya to build stability in the tropical setting of the Maya forest. A judicious application of ethnographic analogs is critically important to these studies, as is exemplified by the contributions of Nigh, Campbell et al., Ford, Wernecke, Gasco, Fedick et al., and Corzo and Schwartz. In combination, the results and interpretations of these papers highlight the complexities of the human-environment relationship in this region.

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Together, the authors of both archaeological and ethnographic papers scrutinize prevailing dogmas on Maya forest use and raise important issues that question the easy assessment of environmental collapse. These authors suggest that both ancient and modern Maya rely on their intimate knowledge of the ecology and environment to constantly adapt to local and regional circumstances, allowing flexibility within the context of environmental and cultural change.

Three major themes are featured in the contributions: household adaptation, local level responses, and regional composition. At the household level, we are given insights into the diversity of the private garden landscapes that provide family solidarity as well as sustenance while at the same time mirroring the contemporary forest species. At the local level, these household patterns reflect the quality of the human-environment relationship where collective mediation of change is a result of land management choices. Ultimately, these household and local level adjustments have a cumulative impact that promotes regional environmental stability despite variable household needs and local conditions.

At the household level, family spaces are demonstrated as a key to intensification based on an intimate knowledge of personal garden spaces. As detailed in Gasco, Fedick et al., and Corzo and Schwartz, the focus on family necessities brings about innovations that enrich long-term productivity of the land. Embedded in the social fabric of daily life, these home gardens are dynamic places nurturing the family in multiple ways.

Adjustments at the local level are examined in the contributions of Luzzadder-Beach and Beach, Nigh, and Wyatt. In these examples, agriculture is seen as the consequence of multiple household decisions that are a cumulative response to local conditions. In all cases, management of soil qualities, especially soil fertility, is an essential response. Incremental adjustments are shown to result in what can be interpreted as major modifications, as demonstrated in the cases of terracing described by Wyatt and canalization described by Luzzadder-Beach and Beach. But other modifications, such as the management of forest succession described by Nigh, that may well represent the more fundamental forest adaptations of the Maya, are more subtle and not readily visible in the archaeological record. It is important to note that these adjustments and modifications are largely driven by the changing nature of the place, where stability in production and long-term resilience was the desired outcome in maintaining the landscape.

Subtle dimensions are part of the regional ecology. The contributions of Emery and Thornton, Ford, Wernecke, and Campbell et al. reveal the environment response to human activities past and present. Regional level considerations reveal that the Maya forest, while reflecting the inevitable changes that come with human population growth and decline, retained its essential character. This resilience of the forest ecology is noteworthy, because even the introduction of small scale traditional pastures for European animals has allowed for the regeneration of key forest species, as Campbell et al. show here. The data herein suggest a regional flexibility in forest ecology that is unappreciated in the conservation world today. Indeed, these papers imply that the forest mosaic itself is an important quality of its ability to regenerate. Rather than having been protected, the Maya forest is a record of resilient response to millennia of human perturbations.

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SUMMARY

From the innovative perspectives in this collection of papers, a new picture emerges. Regional data on the ancient environment and human relationships in the Maya forest need to be reconsidered. Emery and Thornton's faunal data demonstrate that, over time and across space, animals used by the Maya represent a consistent continuum of open and closed habitats, suggesting that the forest mosaic remained relatively stable over the tumultuous prehistory of the Maya. Ford shows that the plant oligarchy of the Maya forest, replete with economic values recognized today, is under-represented in the lacustrine pollen core data on which many paleoenvironmental reconstructions are based. Wernecke's data on lime manufacture establishes that the production of plaster does not equate directly to the consumption of forest fuel, and questions the thesis that plaster production contributed to ancient forest destruction.

Additionally, we must consider the important lessons found in the ethnographic data on today's complex household gardens of the Maya area, with their emphasis on the unique qualities that fulfill the general needs of the populace. What seems to be pure rock turns into sophisticated plant containers in the case presented by Fedick et al. Distant gardens, such as those of the Soconusco described by Gasco and those of the central Petén discussed by Corzo and Schwartz, share much in common as social environments. Interaction and change, reconciled at the household level, creates responses that build towards local and regional stability, as represented in the case of the dark earths described by Nigh, the hydrological constraints of rising water tables in Luddader-Beach and Beach, and the soil conservation measures shown by Wyatt.

The overall view is one of complexity. While major transformations were wrought on the landscape by climate change and human occupation, the resultant character of the Maya forest speaks to a give-and-take, change-with-response, that was continuous, and both subtle and diverse. Individual household subsistence management decisions from the clearing of forest, the establishment of the milpa, the hunting of animals, and the construction of buildings acted as a dynamic force for regional change that with detailed interdisciplinary investigation can be read on the Maya forest landscape.

Combined here, these papers deliver a clarion call for the reassessment of the simple approach to the Maya forest environment by re-evaluating the archaeological evidence of environmental management, and acknowledging the importance of the present-day traditional systems as both a clue to the past and a promise for the future of the integrity of the Maya forest. Indeed, the papers of this special edition of the *Journal of Ethnobiology* suggest innovative lines of exploration and arenas of inquiry that can prove fruitful in resolving the debates on the culture of the Maya forest.

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REFERENCES CITED

Atran, S., D. Medin, N. Ross, E. Lynch, J. Coley, E. Ek'Ukan, and V. Vapnarsky. 1999. Folkecology and commons management in the Maya lowlands. *Proceedings of the National Academy of Sciences of the United States of America* 96:7598–7603.

Farriss, N.M. 1992. *Maya society under colonial rule: The collective enterprise of survival*. Fifth ed. University of Princeton Press, Chichester, West Sussex Original edition, 1984.

Faust, B.B. 2001. Maya environmental successes and failures in the Yucatan Peninsula. *Environmental Science and Policy* 4:153–169.

Gliessman, S.R. 1983. Allelopathic interactions in crop weed mixtures. *Journal of Chemical Ecology* 9:991–999.

Gómez-Pompa, A. and A. Kaus. 1990. Traditional management of tropical forests in Mexico. In *Alternatives to deforestation: Steps toward sustainable use of the Amazon rain forest*, ed. A.B. Anderson, pp. 45–64, Columbia University Press, New York.

Haug, G.H., K.A. Hughen, D.M. Sigman, L.C. Peterson, and U. Rohl. 2001. Southward migration of the Intertropical Convergence Zone through the Holocene. *Science* 293:1304–1308.

Peterson, L.C. and G.H. Haug. 2005. Climate and the collapse of Maya civilization: A series of multi-year droughts helped to doom an ancient culture. *American Scientist* 93:322–329.

Whitmore, T.M. and B.L. Turner II. 2002. *Cultivated landscapes of Middle America on the eve of conquest*. Oxford University Press, Oxford.

Terán, S. and C.H. Rasmussen. 1994. *La milpa de los mayas: La agricultura de los Mayas prehispánicas y actuales en el noreste de Yucatán*. Universidad de Yucatán, Mérida.

Wilken, G.C. 1987. *Good farmers: Traditional agricultural resource management in Mexico and Central America*. University of California Press, Berkeley, CA.

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